

Listing of Claims

Claim 1 (Currently Amended): A method of identifying key video frames in a sequence of image frames, each of said sequence of image frames containing a plurality of pixels, each of said plurality of pixels corresponding to a corresponding point of an area based on which said sequence of image frames are generated, said method comprising:

determining a rate of change of visual content of each current frame from a corresponding reference frame, each of said current frame and said reference frame being comprised in said sequence of image frames,

wherein said rate of change represents a difference of a first value and a second value, said first value representing a change of visual content of a current frame compared to a first frame, said second value representing a change of visual content of said first frame compared to a second frame, wherein said second frame is a reference frame for said first frame and said first frame is a reference frame for said current frame; and

selecting said current frame as a key video frame if said rate exceeds a first threshold value.

Claim 2 (Currently Amended): The method of claim 1, wherein said determining comprises:

determining a displacement magnitude of each moved pixel of said current frame compared to the position in said ~~reference~~ first frame and of said first frame compared to the position in said second frame; and

computing a first representative magnitude of said displacement magnitude for said moved pixels of said current frame compared to said first frame, and a second representative magnitude of said displacement magnitude for said moved pixels of said first frame compared to said second frame,

wherein said first value and said second value respectively equal said first representative magnitude and said second representative magnitude such that said rate is computed as a difference of said first representative magnitude and said second representative magnitude; and

~~selecting said current frame as said key video frame if said representative magnitude exceeds a second threshold value.~~

Claim 3 (Currently Amended): The method of claim 2, wherein said first

representative magnitude for said current frame ~~comprises~~ equals an average of motion energy vector magnitudes of said moved pixels of said current frame in comparison with corresponding pixels of said first frame.

Claim 4 (Original): The method of claim 3, wherein said current frame is selected as said key video frame only if said first representative magnitude exceeds a second threshold ~~wherein said rate is computed from said average motion energy vector magnitude~~.

Claim 5 (Original): The method of claim 4, wherein said first threshold and said second threshold are adjusted dynamically to ensure that a desired number of frames are selected as key video frames in a specified duration.

Claim 6 (Original): The method of claim 4, further comprising identifying a plurality of active pixels in said current frame, wherein a pixel is considered an active pixel if a corresponding displacement magnitude is outside of a range, wherein only said plurality of active pixels are used by said computing.

Claim 7 (Original): The method of claim 6, wherein said range set by a distance of two times the variance from the mean of a distribution.

Claim 8 (Currently Amended): The method of claim 6, wherein said first representative magnitude comprises an average of said active pixels.

Claim 9 (Original): The method of claim 6, further comprising:
enabling a user to specify one of a plurality of key video frames, wherein said plurality of key video frames are selected by said selecting; and
displaying said specified one of said plurality of key video frames.

Claim 10 (Original): The method of claim 9, further comprising:
displaying a prior key video frame and a next key video frame in relation to said specified one of said plurality of key video frames, wherein said prior key video frame and said next key video frame are comprised in said plurality of key video frames.

Claim 11 (Original): The method of claim 10, further comprising:
generating a display indicating the manner in which said plurality of key video frames are interspersed in said sequence of image frames, wherein said enabling is based on said display.

Claim 12 (Original): The method of claim 11, wherein said display comprises a pie chart.

Claim 13 (Original): The method of claim 10, further comprising:
generating a display listing said plurality of key video frames, wherein said enabling is based on said display.

Claim 14 (Original): The method of claim 13, wherein said display comprises a button, which when selected, causes said display to be generated.

Claim 15 (Currently Amended): The method of claim 1, wherein said first frame and said current frame are respectively ~~reference frame comprises an~~ adjacent to said second frame and said first frame in said sequence of frames ~~frame~~.

Claim 16 (Currently Amended): A computer readable medium ~~carrying~~ storing one or more sequences of instructions for causing a processing system to identify key video frames in a sequence of image frames, each of said sequence of image frames containing a plurality of pixels, each of said plurality of pixels corresponding to a corresponding point of an area based on which said sequence of image frames are generated, wherein execution of said one or more sequences of instructions by one or more processors contained in said processing system causes said one or more processors to perform the actions of:

determining a rate of change of visual content of each current frame from a corresponding reference frame, each of said current frame and said reference frame being comprised in said sequence of image frames,

wherein said rate of change represents a difference of a first value and a second value, said first value representing a change of visual content of a current frame compared to a first frame, said second value representing a change of visual content of said first frame compared

to a second frame, wherein said second frame is a reference frame for said first frame and said first frame is a reference frame for said current frame; and

selecting said current frame as a key video frame if said rate exceeds a first threshold value.

Claim 17 (Currently Amended): The computer readable medium of claim 16, wherein said determining comprises:

determining a displacement magnitude of each moved pixel of said current frame compared to the position in said ~~reference~~ first frame and of said first frame compared to the position in said second frame; and

computing a first representative magnitude of said displacement magnitude for said moved pixels of said current frame compared to said first frame, and a second representative magnitude of said displacement magnitude for said moved pixels of said first frame compared to said second frame,

wherein said first value and said second value respectively equal said first representative magnitude and said second representative magnitude such that said rate is computed as a difference of said first representative magnitude and said second representative magnitude; and

~~selecting said current frame as said key video frame if said representative magnitude exceeds a second threshold value.~~

Claim 18 (Currently Amended): The computer readable medium of claim 17, wherein said first representative magnitude for said current frame ~~comprises~~ equals an average of motion energy vector magnitudes of said moved pixels of said current frame in comparison with corresponding pixels of said first frame.

Claim 19 (Currently Amended): The computer readable medium of claim 18, wherein said current frame is selected as said key video frame only if said first representative magnitude exceeds a second threshold ~~wherein said rate is computed from said average motion energy vector magnitude.~~

Claim 20 (Original): The computer readable medium of claim 19, wherein said first threshold and said second threshold are adjusted dynamically to ensure that a desired number

of frames are selected as key video frames in a specified duration.

Claim 21 (Original): The computer readable medium of claim 19, further comprising identifying a plurality of active pixels in said current frame, wherein a pixel is considered an active pixel if a corresponding displacement magnitude is outside of a range, wherein only said plurality of active pixels are used by said computing.

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Claim 22 (Original): The computer readable medium of claim 21, wherein said range set by a distance of two times the variance from the mean of a distribution.

Claim 23 (Currently Amended): A digital processing system identifying key video frames in a sequence of image frames, each of said sequence of image frames containing a plurality of pixels, each of said plurality of pixels corresponding to a corresponding point of an area based on which said sequence of image frames are generated, said digital processing system comprising:

means for determining a rate of change of visual content of each current frame from a corresponding reference frame, each of said current frame and said reference frame being comprised in said sequence of image frames,

wherein said rate of change represents a difference of a first value and a second value, said first value representing a change of visual content of a current frame compared to a first frame, said second value representing a change of visual content of said first frame compared to a second frame, wherein said second frame is a reference frame for said first frame and said first frame is a reference frame for said current frame; and

means for selecting said current frame as a key video frame if said rate exceeds a first threshold value.

Claim 24 (Currently Amended): The digital processing system of claim 23, wherein said means for determining is operable to:

determine a displacement magnitude of each moved pixel of said current frame compared to the position in said reference first frame and of said first frame compared to the position in said second frame; and

compute a first representative magnitude of said displacement magnitude for said moved pixels of said current frame compared to said first frame, and a second representative

magnitude of said displacement magnitude for said moved pixels of said first frame compared to said second frame,

wherein said first value and said second value respectively equal said first representative magnitude and said second representative magnitude such that said rate is
5 computed as a difference of said first representative magnitude and said second representative magnitude.; and

~~select said current frame as said key video frame if said representative magnitude exceeds a second threshold value.~~

10 Claim 25 (Currently Amended): The digital processing system of claim 24, wherein said first representative magnitude for said current frame ~~comprises~~ equals an average of motion energy vector magnitude of said moved pixels of said current frame in comparison with corresponding pixels of said first frame.

15 Claim 26 (Currently Amended): The digital processing system of claim 25, wherein said current frame is selected as said key video frame only if said first representative magnitude exceeds a second threshold ~~wherein said rate is computed from said average motion energy vector magnitude.~~

20 Claim 27 (Original): The digital processing system of claim 26, wherein said first threshold and said second threshold are adjusted dynamically to ensure that a desired number of frames are selected as key video frames in a specified duration.

25 Claim 28 (Original): The digital processing system of claim 26, further comprising means for identifying a plurality of active pixels in said current frame, wherein a pixel is considered an active pixel if a corresponding displacement magnitude is outside of a range, wherein only said plurality of active pixels are used by said computing.